

**Minutes of Meeting #18 of RTCA SC-186 Working Group 3**  
**Development of Revision B of the ADS-B 1090 MHz MOPS**  
<http://adsb.tc.faa.gov/WG3.htm>

The meeting was called to order by Co-Chair Dr Vincent Orlando at 1pm 21 January 2004, as a teleconference hosted by the FAA William J Hughes Technical Center. Dr. Orlando welcomed all attendees and asked that each attendee introduce themselves and their organization. The attendees included:

Larry Bachman – Johns Hopkins – APL	Carl Jeziwski, FAA TC – ACB-420	Tom Pagano, FAA TC – ACB-410
Bob Burns, Titan Corp, FAA TC – ACB-410	Ron Jones, FAA ASD-140	Stacey Rowlan, L-3 Communications ACSSD
John Doughty, Garmin International	Judy Loewe, Honeywell Redmond	Mark Schneider, Sensis Corp
Gary Furr, Titan Corp, FAA TC – ACB-410	James Maynard, Garmin AT	Stuart Searight, FAA TC – ACB-420
Bill Harman, MIT Lincoln Lab	Chris Moody, Mitre CASSD	Ronald Staab, Trios Associates
Christine Haissig, Honeywell Aerospace	Vince Orlando, MIT Lincoln Lab	John Van Dongen, FAA TC – ACB-410

1. The following known regrets to attendance were recognized previous to or during the meeting:
  - Bob Semar, United Airlines
  - Bob Saffell, Rockwell Collins
2. Vince Orlando started off the teleconference by making a few statements about what he expected during this meeting. Vince indicated that he believes that we should be working specifically toward the publication of an Appendix for TSO C166 and not toward a revision of the 1090 MOPS, published last year as RTCA DO-260A. There was general agreement among the Working Group on how to proceed with the meeting.
3. Following Agenda Item #2, Gary Furr began a detailed review of Working Paper 1090-WP-18-02, which is a current summary of the known proposed changes to DO-260A, some of which will be considered as input to the TSO Appendix. The only Working Group discussion of items in this Working Paper centered on the issue of the Aircraft/Vehicle Length/Width Code Table change. It was agreed that Table 3-2 from the ASA MASPS would be taken and used to replace Table 2-74 in DO-260A. It was further agreed that the note under ASA MASPS Table 3-2 would be turned into a requirement when entered in the TSO Appendix, and eventually into a revision of DO-260A. It was agreed that Gary Furr would continue to maintain this “Proposed Change Matrix” with appropriate updates as a running description of changes required or requested in DO-260A.
4. In addition to those proposed changes identified in Working Paper 1090-WP-18-02, within 24 hours of the teleconference Gary Furr had received emails from Ron Staab and Bill Harman with further proposed change requests. The Working Group agreed to discuss those changes and began with the three issues noted by Dr. Harman, including: (a) the suggestion that tests should be added to the test procedures in §2.4.3.2.3.7.2.1 and §2.4.3.2.3.8.2.1 to assure the regular updating of latitude and longitude with time. (b) The request to add a clarifying note in §2.2.10.3.1, indicating that if the airborne target has already been in track as a surface target, then it is not necessary to perform a global decode. A corresponding change could be made in §2.2.10.3.2 in the section on global decoding for a surface target. (c) The correction of a formula error in §3.3.4.6.1, Equation #3 wherein the formula for relating range to power should read 10 to the power of (-1.57), instead of what was published as (-1.57) to the power of 10. It was *agreed* by the Working Group that only items (a) and (c) would be placed into the TSO Appendix, but that all items would be entered into the “Proposed Change Matrix.”

The additional item submitted by Ron Staab, which the Working Group agreed to discuss, related to the possibility of using the ADS-B TEST Message (TYPE Code 23) for the purpose of doing online internal RF Test support and/or broadcast of parrot-like messages between adjacent fixed ground transmitters. After Working Group discussion, it was suggested that Ron explore using the Surface System Status Message (TYPE Code 24) for his needs. However, whether he proposes to use the TEST Message (TYPE Code 23) or the Surface System Status Message (TYPE Code 24), a proposal must be made to the Working group for the definition of a specific format for the Subtype being proposed for usage. It was *agreed* that this issue would be entered into the “Proposed Change Matrix” for future Working Group consideration, but that no change would be proposed for the TSO Appendix.

5. The Working Group continued its discussion with Ron Staab and began to discuss Working Paper 1090-WP-18-05 in which Ron asks that the Working Group consider changing the transmit power of the Class B2 equipment based on published requirements in the new ASA MASPS (RTCA DO-289). After Working Group discussion, it was *agreed* that this issue would be entered into the “Proposed Change Matrix” and would be the topic of future discussion, but would not be considered as part of the TSO Appendix.
6. The Working Group then began consideration of Working Paper 1090-WP-18-04, which contains the details of a possible Appendix to TSO C166, proposed by the FAA for ADS-B Subsystems transmitting and receiving on 1090 MHz. Since the reasons for all of the indicated changes in this Working Paper were already discussed in some detail during the discussion of Working Paper WP-18-02, the Working Group discussion centered on the details of each specific change. It was *agreed* that for change “(1)”, item 3, subparagraph “a” that the Note would be changed into a requirement. A typo was noted in the Note under change “(3)” whereby “vertical” should have been “horizontal.” It was further *agreed* that for change “(4)” the Table 3-2 from the ASA MASPS would be used to replace Table 2-74 and further that the Note under Table 3-2 would be changed into a requirement. It was noted that numerous of the proposed test procedure changes had not been finalized and that those “TBD” sections would be completed within the next two weeks and that the proposed TSO Appendix would then be emailed back out to the Working Group for review. It is not known at this time whether or not the future review of this TSO Appendix will actually require another Working Group teleconference, but if it is needed, one will be scheduled.
7. The Working Group then began the review of Working Paper 1090-WP-18-06 presented by Vince Orlando as a proposal to add the definition of “Locally Unambiguous CPR Decoding for Surface Position” to Appendix A, by replacing the existing paragraph A.1.7.8 and renumbering the existing paragraph to A.1.7.9. As this proposal is a result of real data coming from Australia and since this proposal has already been accepted by the ICAO SCRSP WG-B for inclusion into the next revision of the 1090 SARPS, the Working Group *agreed* that the recommended text in WP-18-06 be implemented into Appendix A. As a post-meeting exercise, Gary Furr has also identified several paragraphs in 2.2.10 and 2.4.10 that are also affected and these paragraphs will be added to the list of proposed changes and added to the TSO Appendix draft.
8. The Working Group then began the review of Working Paper 1090-WP-18-01 presented by Chris Moody as a comparison of methods for indicating TIS-B Service Status to airborne users. The Working Paper discusses advantages and disadvantages for exception-based and regularly updated (“heartbeat”) indications. The Working Group *agreed* that this issue would be entered into the “Proposed Change Matrix” and that further discussion needed to be held with Working Group 2 on the proposed implementation of the various proposed solutions to the problem presented in the working paper.

9. With all Working Papers having been reviewed, the Working Group was asked if there was any Open or Further Business that needed to be discussed. A discussion continued regarding whether or not to propose to RTCA that the TSO Appendix could be used as a “Change 1” to DO-260A. Many Working Group members felt that it was necessary for the Working Group as well as RTCA to publish either the TSO Appendix, or to issue the entire revision to the document along with details of the changes that were included. It was *agreed* that the issue would be presented to the RTCA SC-186 Plenary on their next meeting on 9 April 2004 at RTCA as to whether or not the changes should be represented as a relatively small “Change 1,” or as a total replacement of the document and a change in revision letters to “DO-260B.”
10. The Meeting was then adjourned with the understanding that the modifications would be made to the proposed TSO Appendix as rapidly as possible and that it would be distributed via email for review prior to releasing to the FAA. The “Proposed Change Matrix” will be updated as well and posted on the 1090 web site as Revision 1 to Working Paper 1090-WP-18-02, until the next WG-3 meeting.
11. The following **Action Item** was identified as the only Action Item that remained OPEN at the end of this meeting.

Action Number	Action Description	Assigned to	Status
8-1	Provide the results from testing with the directional 1090 MHz receive antenna. (Flight Tests originally scheduled for 24-25 April 2002 were delayed because the LDPU had a problem)	Carl Jezierski	

12. The **Working Papers** for all WG-3 Meetings, as well as the Meeting Agendas, Meeting Minutes, Meeting Schedules and proposed modifications to both DO-260 and DO-260A will be posted on the ADS-B 1090 MHz web site maintained at the FAA William J Hughes Technical Center, located at: <http://adsb.tc.faa.gov/WG3.htm>